



I3-MYDAS

Newsletter I I

FLENDER

State-of-the-art remanufacturing technologies for high torque density journal bearing gearboxes



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FLENDER project finalisation is coming close in R3-MYDAS to exploit state-of-the-art remanufacturing technologies for high torque density journal bearing gearboxes

Flender has over 40 years of experience in developing wind turbine drivetrain solutions and technology. In R3-MYDAS, a specific dynamic journal bearing tester was used for validating load cases, which were intended to confirm the remanufactured or coated journal bearing behaviour against the seizure-critical operational modes.

One goal of the project was also to examine the potential of new “remanufacture” service processes and methodologies – providing cost and environmental benefits to the industry.

In a previous newsletter from 2025, it was mentioned that testing of generation 1 and 2 journal bearings in the dynamic journal bearing tester started in 2024, was successfully implemented, and phase 3, demanding loading conditions and Stribeck curve investigations, was planned. Moreover, remanufacturing of the journal bearing was briefly outlined, and basic principles were introduced.

Remanufacturing test was successfully done on a serial sample successfully by replacing the damaged layer and applying a new layer on top. This was validated internally as a suitable repair method, and further developments of the method were already drafted.

On prevention of failures from single blade installation (SBI) to turbines. Different approaches to failure-prevention coating materials were tested and used as a benchmark. A specific test plan was made to match the demanding loads during blade installation in a wind turbine. There was found technologies, which passed the demanding tests and were proven to work in an acceptable way. Thus, coating methods can be used for mitigating damage caused by SBI in wind turbine journal bearings, and the same technologies are also competitive for new constructions.

The overall results from investigations achieved with the help of R3Mydas have pushed the technological level of journal bearings, both in remanufacturing and robustness in wind turbines, further. Moreover, the next steps of the generation 3 roadmap are already building on top of the previous generation.

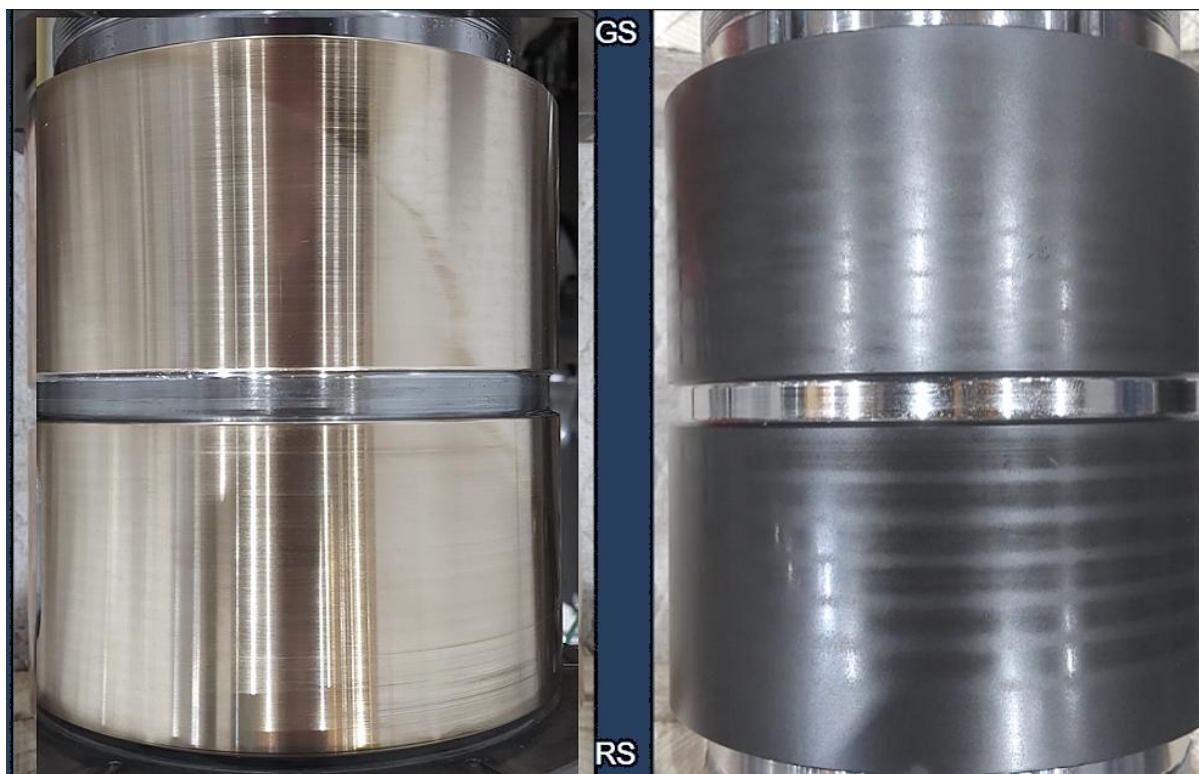


Figure 1. Two very different kinds of materials as bonded to the axles. SBI loads have visually marked the contact zones, but critical wear was avoided.